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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,063	01/04/2001	Gebhard Michenfelder	10191/1583	9602

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EXAMINER
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STAFIRA, MICHAEL PATRICK

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/673,063	<b>Applicant(s)</b> MICHENFELDER ET AL.	
	<b>Examiner</b> Michael P. Stafira	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20-66 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-43 and 66 is/are allowed.
- 6) ☒ Claim(s) 44-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

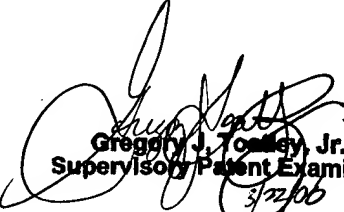
1. In view of the Appeal Brief filed on January 13, 2006, PROSECUTION IS HEREBY REOPENED. The rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

  
Gregory J. Tomley, Jr.  
Supervisory Patent Examiner  
3/22/06

***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 44-48, 51-53, 61, 64, 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levers et al. ('923) in view of Hochstein ('996).

**Claim 44**

Levers et al. ('923) discloses a housing (Fig. 1, Ref. 5) including a light conducting element (Fig. 1, Ref. 2) joined to the housing (Col. 2, lines 59-67); and a plurality of optical and electronic components mounted in the housing including at least one transmitter (Fig. 1, Ref. 3) for transmitting an electromagnetic wave and at least one receiver (Fig. 1, Ref. 4) for receiving the electromagnetic wave, the measuring distance influencing a wave propagation between the at least one transmitter and the at least one receiver such that when a coating forms on the windshield, an output signal sensed by the at least one receiver is changed (Col. 5, Claim 8).

Levers et al. ('923) substantially teaches the claimed invention except that it does not show a least one ambient light sensor that is sensitive to visible light. Hochstein ('996) shows that it is known to provide at least one ambient light sensor (Fig. 1, Ref. 22) that is visible to light (Col. 3, lines 3-11) for a rain sensor mounted to a windshield. It would have been obvious to combine the device of Levers et al. ('923) with the ambient sensor of Hochstein ('996) for the

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purpose of providing which allows the sensor to compensate for changes in the ambient light, therefore allowing the sensor to be more accurate.

**Claim 45**

The reference of Levers et al. ('923) further discloses that the rain sensor is used in a motor vehicle (Col. 2, lines 15-16).

**Claim 46**

Levers et al. ('923) further discloses the coating is a result of wetting by precipitation (Col. 5, Claim 8).

**Claim 47**

The reference of Levers et al. ('923) further discloses the light conducting element (Fig. 1, Ref. 2) forms a base plate of the housing (Fig. 1, Ref. 5) and includes a broad area of connection with the windshield (See Fig. 1).

**Claim 48**

Levers et al. ('923) further discloses a common printed board (Fig. 1, Ref. 7) on which is mounted the plurality of optical (Fig. 1, Ref. 3, 4) and electronic components in accordance with SMD technology (Col. 3-4, lines 53-21)

**Claim 51**

The reference of Levers et al. ('923) further discloses that the rain sensor is cemented (Col. 6, lines 40-41) to an inside of the windshield (Col. 2, lines 7-14).

**Claim 52**

Levers et al. ('923) further discloses a transparent film (Fig. 1, Ref. 2') that is self-adhesive on each side thereof and corresponds to a connection between the windshield and the light conducting element (Col. 2, lines 7-14).

**Claim 53**

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The reference of Levers et al. ('923) further discloses that the output signal is provided to a downstream analysis circuit (Col. 4, lines 40-44) and includes information with respect to an instantaneous degree of wetting of the windshield and the housing is a rectangular-shaped sensor housing (See Fig. 1).

**Claim 61**

Levers et al. ('923) further discloses that the light conducting element includes optical areas formed from transparent plastic for at least one receiver (Col. 2, lines 21-40).

**Claim 64**

The reference of Levers et al. ('923) further discloses the light conducting element (Fig. 1, Ref. 2) includes integrated lens structures (Fig. 1, Ref. 2b) for light bundling (Col. 2, lines 21-31).

**Claim 65**

The reference of Levers et al. ('923) further discloses the light conducting element (Fig. 1, Ref. 2) forms a cover of the housing (See Fig. 1).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 49, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levers et al. ('923) in view of Hochstein ('996) as applied to claim 48 above, and further in view of Zettler et al. ('245).

**Claim 49**

Levers et al. ('923) in combination with Hochstein ('996) substantially teaches the claimed invention except that it does not show an integrated connector for an electrical connection to a downstream analysis unit. Zettler et al. ('245) shows that it is known to provide an integrated connector (Fig. 3, Ref. 46) for an electrical connection to a downstream analysis unit (Col. 3, lines 5-13) for a remote connection sensor. It would have been obvious to combine the device of Levers et al. ('923) in combination with Hochstein ('996) with the integrated connector of Zettler et al. ('245) for the purpose of providing signals to turn-on a wiper assembly when moisture is detected on the windshield. It is obvious to one skilled in the art to know that the motor assembly of Zettler et al. ('245) would have some sort of analysis unit to determine when to turn-on or turn-off the motor assembly, therefore the reference of Zettler et al. ('245) reads on applicants claim.

The reference of Levers et al. ('923) further discloses that the housing (Fig. 1, Ref. 5) corresponds to a rectangular-shaped sensor housing (See Figure 1).

**Claim 50**

Levers et al. ('923) in combination with Hochstein ('996) substantially teaches the claimed invention except that it does not show contact pins through which the printed circuit board is connected to the integrated connector. Zettler et al. ('245) shows that it is known to provide contact pins (See Fig. 3) through which the printed circuit board (Fig. 3, Ref. 42) is connected to the integrated connector (Fig. 3, Ref. 46) (See Fig. 3) for an external connection to a sensor. It would have been obvious to combine the device of Levers et al. ('923) in

combination with Hochstein ('996) with the contact pins of Zettler et al. ('245) for the purpose of providing signals to turn-on a wiper assembly when moisture is detected on the windshield.

6. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levers et al. ('923) in combination with Hochstein ('996).

**Claim 54**

Levers et al. ('923) in combination with Hochstein ('996) substantially teaches the claimed invention except that it does not show at least one of a windshield wiper mechanism and a vehicle lighting system is activated as a function of the output signal. It would have been obvious to one skilled in the art at the time of the invention to combine the device of Levers et al. ('923) in combination with Hochstein ('996) with the windshield wiper mechanism and a vehicle lighting system for the purpose of providing compact construction therefore, allowing multiple instructional signals to indicate or instruct a function.

7. Claims 55, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levers et al. ('923) in combination with Hochstein ('996) as applied to claim 44 above, and further in view of Watanabe et al. ('613).

**Claim 55**

Levers et al. ('923) in combination with Hochstein ('996) substantially teaches the claimed invention except that it does not show the one transmitter includes at least one LED. Watanabe et al. ('613) shows that it is known to provide at least one transmitter that includes at least one LED (Fig. 1, Ref. 24; Col. 3, lines 67-68) for an optical rain sensor. It would have been obvious to combine the device of Levers et al. ('923) in combination with Hochstein ('996) with



the LED of Watanabe et al. ('613) for the purpose of providing a long lasting reliable light emitting source when used in a harsh environment.

**Claim 56**

Levers et al. ('923) in combination with Hochstein ('996) substantially teaches the claimed invention except that it does not show a first one of the at least one receiver that detects an optical signal emitted by the at least one LED includes a photodiode. Watanabe et al. ('613) shows that it is known to provide a receiver that detects an optical signal emitted by the LED includes a photodiode (Fig. 1, Ref. 25; Col. 4, lines 3-7) for an optical rain sensor. It would have been obvious to combine the device of Levers et al. ('923) in combination with Hochstein ('996) with the LED and photodiode of Watanabe et al. ('613) for the purpose of providing a long lasting reliable light receiving element when used in harsh environments.

8. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levers et al. ('923) in combination with Hochstein ('996) as applied to claim 44 above, and further in view of O'Farrell et al ('917).

**Claim 57**

Levers et al. ('923) in combination with Hochstein ('996) and O'Farrell et al. ('917) discloses the claimed invention except for the at least one ambient light sensor includes an aperture angle of approximately 40 degrees inclined upward with an aperture direction in a direction of travel. It would have been an obvious matter of design choice to angle the aperture at 40 degrees, since applicant has not disclosed that having the aperture at 40 degrees solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the 25 degree aperture (Col. 7, lines 3-6) disclosed in O'Farrell et al. ('917).

9. Claims 58, 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levers et al. ('923) in combination with Hochstein ('996) and O'Farrell et al. ('917) as applied to claim 44 above, and further in view of Hasch et al. ('669).

**Claim 58**

Levers et al. ('923) in combination with O'Farrell et al. ('917) and Hochstein ('996) substantially teaches the claimed invention except that it does not show the at least one ambient light sensor is sensitive to ultraviolet light. Hasch et al. ('669) shows that it is known to provide at least one ambient light sensor that is sensitive to ultraviolet light (See Abstract; Col. 4, lines 40-56) for a vehicle moisture sensor. It would have been obvious to combine the device of Levers et al. ('923) in combination with O'Farrell et al. ('917) and Hochstein ('996) with the sensitivity to ultraviolet light of Hasch et al. ('669) for the purpose of providing a sensor system that reacts to subsequent changes in the ambient conditions. It is obvious to one skilled in the art to know that the reference of Hasch et al. ('669) is sensitive to ultraviolet light because the optical sensor of Hasch et al. ('669) measures ambient light for a vehicle and therefore would naturally measure sunlight which contains ultraviolet light.

**Claim 59**

Levers et al. ('923) in combination with O'Farrell et al. ('917) and Hochstein ('996) substantially teaches the claimed invention except that it does not show the ultraviolet light corresponds to sunlight. Hasch et al. ('669) shows that it is known that ultraviolet light corresponds to sunlight (See Abstract; Col. 4, lines 40-56) for a vehicle moisture sensor. It would have been obvious to combine the device of Levers et al. ('923) in combination with O'Farrell et al. ('917) and Hochstein ('996) with the ultraviolet light of Hasch et al. ('669) for the purpose of providing a sensor system that reacts to subsequent changes in the ambient conditions. It is obvious to one skilled in the art to know that the reference of Hasch et al. ('669) measures

ambient light from a vehicle optical sensor, therefore it would naturally measure ultraviolet light which corresponds to sunlight.

10. Claims 60,62,63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levers et al. ('923) in combination with Hochstein ('996) as applied to claim 44 above, and further in view of Zettler et al. ('245).

**Claim 60**

Levers et al. ('923) in combination with Hochstein ('996) substantially teaches the claimed invention except that it does not show when infrared light is used the light conducting element is formed of a black plastic. Zettler et al. ('245) shows that it is known to provide a molded light conducting element (Fig. 3, Ref. 34, 36) that is formed of black plastic when infrared light is used (Col. 2, lines 56-58) for a moisture activated wipe sensor. It would have been obvious to combine the device of Levers et al. ('923) in combination with Hochstein ('996) with the conducting element of Zettler et al. ('245) for the purpose of providing filtered light to a detector so as to prevent other wavelengths from being sensed. It would be obvious to one skilled in the art to know that the color molded plastic (Col. 2, lines 56-58) of Zettler et al. ('245) which passes infrared light would be a black color so as to block the primary colors of light.

**Claim 62**

Levers et al. ('923) in combination with Zettler et al. ('245) and Hochstein ('996) disclose the claimed invention except for the light conducting element includes a plastic part formed according to a two-color injection molding process. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Levers et al. ('923) in combination with Zettler et al. ('245) and Hochstein ('996) with the two-color injection molding process since it was well known in the art that lenses or filters are manufactured in a injection mold process according to the type of wavelengths to be filtered because it reduces the

amount of optical element in a compact sensor system. A typical injection molded filter would be found on a regular infrared TV remote control, which are typically black.

**Claim 63**

Levers et al. ('923) in combination with Zettler et al. ('245) and Hochstein ('996) discloses the claimed invention except for the light conducting element is formed by combining two single-color plastics. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Levers et al. ('923) in combination with Zettler et al. ('245) and Hochstein ('996) with the two single-color plastics since it was well known in the art that combining two single-color plastics provides a low cost to manufacture and reduce the amount of space needed in a optical sensor.

***Allowable Subject Matter***


11. Claims 20-43,66 are allowed over the prior art of record.

Regarding claim 20, the prior art fails to disclose or make obvious a rain sensor arranged with respect to a measuring distance in which is arranged a windshield having a light conducting element for joining to the housing, wherein the light conducting element includes a first region having a first color and a second region having a second color that is different than the first color, and in combination with the other recited limitations of claim 20. Claims 21-43, 66 are allowed by the virtue of dependency on the allowed claim 20.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430. The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Michael P. Staffra  
Primary Examiner  
Art Unit 2877

March 21, 2006